

WHAT IS CLAIMED IS

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1. A blade-type optical transmission apparatus, comprising:

10 a plurality of main-signal blades, each of which is provided with an external optical signal interface unit, a cross-connect unit, and an internal optical signal interface unit;

15 a blade enclosure in which said plurality of main-signal blades are enclosed; and

20 a back plane which is situated inside said blade enclosure and provides a ring connection for the internal optical signal interface unit between the main-signal blades.

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25 2. The blade-type optical transmission apparatus as claimed in claim 1, further comprising a bypass blade, which is attached to a portion of said blade enclosure that is configured to receive one of the main-signal blades, and partitions the ring connection provided by said back plane.

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35 3. The blade-type optical transmission apparatus as claimed in claim 1, further comprising a through blade, which is attached to a portion of said blade enclosure that is configured to receive one of the main-signal blades, and allows a through passage of a main signal inside said through blade

as the main signal is exchanged with said back plane.

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4. The blade-type optical transmission apparatus as claimed in claim 1, further comprising a power blade, which is attached to a portion of said blade enclosure that is configured to receive 10 one of the main-signal blades, and amplifies a main signal exchanged with said back plane.

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5. The blade-type optical transmission apparatus as claimed in claim 1, further comprising a joint blade, which is attached to a portion of said blade enclosure that is configured to receive 20 one of the main-signal blades, and exchanges a main signal, exchanged with said back plane, with a back plane of another blade-type optical transmission apparatus.

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6. The blade-type optical transmission apparatus as claimed in claim 1, wherein the ring 30 connection has two points between which a coupling is provided by one of the main-signal blades, said back plane including a mechanism which provides a coupling between the two points of the ring connection when said one of the main-signal blades 35 is not inserted.

7. The blade-type optical transmission apparatus as claimed in claim 1, wherein a signal
5 transmitted through the ring connection is an optical signal.

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8. The blade-type optical transmission apparatus as claimed in claim 7, wherein said back plane includes a two-fiber BLSR for providing the ring connection.

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9. The blade-type optical transmission apparatus as claimed in claim 7, wherein said back plane includes a plurality of two-fiber BLSRs for providing the ring connection.

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10. The blade-type optical transmission apparatus as claimed in claim 7, wherein the signal transmitted through the ring connection is a
30 wavelength multiplexed optical signal.

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11. The blade-type optical transmission apparatus as claimed in claim 1, wherein a signal transmitted through the ring connection is an

electrical signal.

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12. The blade-type optical transmission apparatus as claimed in claim 1, wherein one of the main-signal blades provides at least one of a function to partition the ring connection inside 10 said one of the main-signal blades, a function to allows a through passage of a main signal inside said one of the main-signal blades as the main signal is exchanged with said back plane, and a function to amplify a main signal exchanged with 15 said back plane.

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13. The blade-type optical transmission apparatus as claimed in claim 1, wherein one of the main-signal blades provides a function to exchange a main signal, exchanged with said back plane, with a back plane of another blade-type optical 25 transmission apparatus.